

PORTNOV, A.D.; RYABYY, V.A.; YAKOVLEV, Ye.A.

Measuring the average conductivity of high-ionized plasma by  
the radio-frequency method. Izv. vys. ucheb. zav.; av. tekhn.  
7 no.4:111-116 '64 (MIRA 18:1)

1. ZAYTSEVA, R. M.; PORTNOV, A. I.
2. USSR (600)
4. Chemistry, Medical and Pharmaceutical
7. Improvement of the method of examining the extract of smartweed (*Polygonum hydropiper*).  
Apt. delo no. 5, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

PORTNOV, A. F.

Determination of tin with arsenic acids. A. I. Portnov  
(Odessa State Univ. Inst.). *Zhur. Anal. Khim.* 9:118-120 (1954). — Quadrivalent Sn was pptd. with a 5% soln. of Na (*p*-hydroxyphenyl)arsonate or a 5% soln. of Na(4-hydroxy-3-nitrophenyl)arsonate. With the first of these reagents Sn pptd. even from 0.5% HCl solns. and with the 2nd reagent from 1% HCl solns. With the 1st reagent dissolve the ppt. in 10% NH<sub>4</sub>OH and dil. to a definite vol. Place 20-25 ml. of the soln. in a glass-stoppered flask, add HCl to make it 1-2N, add 0.5 g. of KBr, and excess of 0.1N KBrO<sub>3</sub>. After 15 min. add 0.1N NaH<sub>2</sub>AsO<sub>4</sub> soln. and titrate its excess with KBrO<sub>3</sub> with indigo carmine as indicator. One ml. of 1 N KBrO<sub>3</sub> = 0.0459 g. Sn (*p*-hydroxyphenyl)arsonate = 0.009594 g. Sn. Another procedure is to dissolve the ppt. in concd. HCl by heating and finish as before. With the 2nd reagent, filter off the ppt. after 1 hr., wash 6-8 times with H<sub>2</sub>O or 2-3 times with N HCl, place the ppt. in wide-mouthed flask, add 25 ml. 2N HCl, and heat on the steam bath to dissolve. Transfer into a 100-ml. volumetric flask and add 2N HCl to the mark. Brominate 20-25 ml. of this soln. and finish as before. By this method 0.0198 and 0.0218 g. of Sn was detd. with an error of  $\pm 0.0001$  g.

M. Hosh

PORTNOV, A.I., otvetstvennyy redaktor; KNIZHKO, P.O., redaktor; KRAMARENKO, V.F., redaktor; NAUMENKO, M.A., redaktor; PIVNENKO, G.P., redaktor; ROZENBERG, M.A., redaktor; SAVITSKIY, I.V., redaktor; TROTSZENKO, A.G., redaktor; SHELUD'KO, V.M., redaktor; VAYSMAN, G.A., redaktor; MEDVEDEVA, N.B., redaktor; GIMSHTAYN, A.D., tekhnicheskiiy redaktor

[Problems in pharmacy; a collection of scientific papers from pharmaceutical schools of the Ukraine] Nekotorye voprosy farmatsii; sbornik nauchnykh trudov vysshikh farmatsevticheskikh uchebnykh zavedenii Ukrainskoi SSR. Kiev, Gos. med. izd-vo USSR, 1956. 366 p. (MLRA 10:5)

1. Ukraine. Ministerstvo zdravookhraneniya.  
(PHARMACY)

PORTNOV, A. I.

247. Determination of penicillin in its compound preparations. S. G. Fligin and A. I. Portnov.

*Apfechnos Delo*, 1958, 5 (3), 19-22.—The penicillins in procaine penicillin are converted into the relatively stable hydroxamic acids and these are determined colorimetrically in the form of their copper salts. *Procedure*—Dissolve a weighed sample ( $\approx 0.1$  g) of procaine penicillin in about 75 ml of water in a 100-ml calibrated flask. After the flask has been kept at 45° to 50° for 10 to 15 min., cool and make the contents up to 100 ml. Transfer an aliquot of this soln. to a test-tube (19 cm x 2 cm) and dilute the soln. with water to a vol. of 3 to 5 ml. Add 4-5 ml of a mixture of *N* soln. of hydroxylamine hydrochloride and NaOH (pH = 6-6); after 3 to 5 min., add 1 to 1.5 ml of 2 *N* acetic acid soln. and 3 drops of a soln. of CuNO<sub>3</sub> (containing 5% of Cu), and shake the tube. Add 11.5 ml of isobutyl alcohol and mix the contents by gently rotating the tube. Allow the phases to separate for 1 to 2 min., add 0.5 ml of ethanol and carefully mix the contents of the tube by gentle rotation. Measure the colour of the extract in an absorptiometer fitted with a dark-red filter. Carry out a blank experiment to determine the intensity of the colour due to the reagents. For the determination of procaine penicillin, a calibration curve is constructed from results obtained on pure benzylpenicillin.

E. HAYES

PORTNOV, A.I.; ZAYTSEVA, R.M.; GENIKHOVICH, O.M.

Developing indicators for rating the quality of dog rose extracts and improving the process of "cholosas" production. Apt.delo 6 no.1:  
31-35 Ja-F '57. (MLRA 10:3)

1. Iz kafedry farmatsevticheskoy khimii (zaveduyushchiy - professor  
A.I.Portnov) Odesskogo farmatsevticheskogo instituta.  
(DOG ROSE) (DRUGS)

ZAYTSEVA, R.M.; PORTNOV, A.I.

Direct bromometric determination of thymol. Apt.delo 8 no.3:  
58-60 My-Je '59. (MIRA 12:8)

1. Iz kafedry farmatsevticheskoy khimii Odesskogo farmatsevti-  
cheskogo instituta.

(BROMOMETRY)

(THYMOL)

PORTNOV, A.I.; MIKHAYLENKO, M.I.

Use of aromatic acids in pharmaceutical analysis. Apt. delo 9  
no. 4:11-15 J1-Ag '60. (MIRA 13:8)

1. Kafedra farmatsevticheskoy khimii (zav. - prof. A.I. Portnov)  
Odesskogo farmatsevticheskogo instituta (dir. - dotsent A.G.  
Trotsenko).

(ACIDS, ORGANIC)



PORTNOV, A.I.; VASYUTINSKIY, A.I.

Use of substituted phenylarsonic and benzoic acids in inorganic analysis. Trudy kom. anal. khim. 11:192-197 '60. (MIRA 13:10)

1. Odesskiy farmatserticheskiy institut.  
(Benzeneearsonic acid) (Benzoic acid)  
(Chemical tests and reagents)

TROTSSENKO, A.G., otv.red.; PORTNOV, A.I., prof., red.; GORBOV, T.P., red.;  
YEVDOKIMOV, D.Ya., red.; KNIZHKO, P.O., red.; KORCHINSKIY, M.O.,  
red.; LESHCHINSKIY, A.F., red.; LYASHENKO, S.S., red.; ROZENBERG,  
M.A., prof., red.; SAVITSKIY, I.V., prof., red.; SHELUD'KO, V.M.,  
red.

[Research in the field of pharmacy] Issledovaniia v oblasti farmatsii. Pod obshchei red. A.I.Portnova. Odessa, M-vo zhdavookhraneniia USSR, 1959. 314 p. (MIRA 13:6)

1. Zaporozhskiy gosudarstvennyy farmatsevticheskiy institut. 2. Kafedra organicheskoy khimii Odesskogo gosudarstvennogo farmatsevticheskogo instituta (for Trotsenko). 3. Kafedra farmatsevticheskoy khimii Odesskogo gosudarstvennogo farmatsevticheskogo instituta (for Portnov). 4. Kafedra neorganicheskoy i sudebnoy khimii Odesskogo gos.farmatsevt. instituta (for Yevdokimov). 5. Kafedra analiticheskoy khimii Odesskogo gos.farmatsevt.instituta (for Knizhko). Kafedra marksizma-leninizma i organizatsiya farmdela Odesskogo gos.farmatsevt.instituta (for Korchinskiy). 6. Kafedra biokhimii Odesskogo gos.farmatsevt.instituta (for Leshchinskiy). 7. Kafedra farmakognozii i tekhnologii lekarstvennykh form i galenovykh preparatov Odesskogo gos.farmatsevt.instituta (for Lyashenko). 8. Zaveduyushchiy kafedroy fiziologii i farmakologii Odesskogo gos.farmatsevt.instituta (for Rozenberg). 9. Zaveduyushchiy kafedroy biokhimii Odesskogo gos.farmatsevt.instituta (for Savitskiy). 10. Kafedra farmakognozii i botaniki Odesskogo gosudarstvennogo farmatsevticheskogo instituta (for Shelud'ko).

(PHARMACY)

PORTNOV, A.I.; VASYUTINSKIY, A.I.

Use of sodium-2-aminobenzoate for the titrimetric determination  
of cadmium [with summary in English]. Zhur. anal. khim. 13 no.3:  
319-323 My-Je '58. (MIRA 12:3)

L.Pharmaceutical Institute, Odessa.  
(Benzoic acid) (Cadmium--Analysis)

AUTHORS: Portnov, A. I., Vasyutinskiy, A. I. 75-13-3-11/27

TITLE: The Use of 2-Sodium- Paraaminobenzoic Acid for the Titrimetric Determination of Cadmium (Primeneniye paraaminobenzoata natriya dlya titrimetricheskogo opredeleniya kadmiya)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 3, pp. 319 - 322 (USSR)

ABSTRACT: Many methods for the quantitative determination of cadmium have been described in publications (Refs 1-7). Complexometric methods for the determination of cadmium have recently grown in importance. When research was undertaken into the influence of substitutes on the solubility of the salts of benzoic acid, it was found that cadmium salts form a hardly soluble compound with 2-sodium-aminobenzoic acid. This observation led to the elaboration of a method for the quantitative determination of the cadmium. This method is based on the precipitation of cadmium by solution of 2-sodium-aminobenzoate and further bromatometric determination of the remaining para-aminobenzoic acid in the precipitate. An investigation of the composition of the precipitate resulted in the following formula:

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The Use of 2-Sodium-Paraaminobenzoic Acid for the  
Titrimetric Determination of Cadmium

75-13-3-11/27

$(\text{H}_2\text{NC}_6\text{H}_4\text{COO})_2\text{Cd} \cdot 3\text{H}_2\text{O}$ . Tests showed that the precipitation of the cadmium begins with a molar relation of Cd: 2-sodium-aminobenzoate - 1 : 1,3 and is complete at a ratio of 1:3,5. A surplus of the reagent has no influence on the accuracy of results obtained. It was further shown, that it is immaterial for the accuracy of the determination how long the precipitate is left to set. The precipitate has well set after 10 to 15 minutes and is easily filterable. Repeated washing with water gives lower results and therefore the precipitate is washed with 70% alcohol, which does not cause any decrease of results even after 10 washings. The precipitation of cadmium according to this method occurs within a pH range of 2 to 6,5 quantitatively. The exactitude of determination is of the same order as that of the gravimetric determination of cadmium according to the sulfate method. With the aid of the method described the following salts of cadmium can be determined: the acetate, the nitrate, the chloride and the iodide of cadmium. Tests have shown that zinc is not precipitated by a solution of 2-sodium-aminobenzoate. Therefore cadmium can be determined

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The Use of 2-Sodium-Paraaminobenzoic Acid for the  
Titrimetric Determination of Cadmium

75-13-3-11/27

in the presence of zinc. It was shown, that, even in the presence of a fivefold surplus of zinc satisfactory cadmium determination can be carried out satisfactorily with this new method. There are 8 tables and 10 references, 5 of which are Soviet.

ASSOCIATION: Farnatsevticheskiy institut, Odessa (Pharmaceutical Institute, Odessa)

SUBMITTED: July 14, 1956

1. Cadmium--Determination

Card 3/3

USSR /Chemical Technology. Chemical Products  
and Their Application

I-21

Medicinals. Vitamins. Antibiotics.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32294

definite volumes of the solution diluted in a test tube to 3-5 ml, added 4.5 ml of a mixture of 1 N  $\text{NH}_2\text{OH} \cdot \text{HCl}$  and 1 N  $\text{NaOH}$  (pH 6.0), after 3-5 minutes added 1-1.5 ml 2 N  $\text{CH}_3\text{COOH}$ , 3 drops 5% solution of Cu nitrate (computed on the basis of the cation) and shaken. Then added 11.5 ml isobutyl alcohol, mixed thoroughly and the test tube is allowed to stand for 1-2 minutes to let the stratify; 0.5 ml alcohol added, mixed carefully, and colorimetry is carried out. Average error in determination of I does not exceed 1%. To determine the activity of II a calibration graph is plotted, using crystalline benzyl-I.

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USSR /Chemical Technology. Chemical Products  
and Their Application

I-21

Medicinals. Vitamins. Antibiotics.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 3229<sup>4</sup>

To determine I in III the latter is first vigorously shaken, at 20°, until it becomes homogeneous, and about 0.1 g are weighed out exactly on a disk of dense paper, and thereafter the procedure is the same as in the analysis of II. Intensity of coloration is compared with a simulated standard: 7.5 ml water, 1 ml 10% HCl, 1.85 ml of a solution of Ni-sulfate (0.132 g per 1 ml solution) and 0.16 ml of Co-nitrate solution (0.155 g per 1 ml solution), 1 ml of standard corresponds to 250 measuring units. Determination error is 3.2% toward the lower values (uneven distribution of I in the oil base)

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PORTNOV, A.M.

Calcium "seidozerite," a new variety of seidozerite."  
Dokl. AN SSSR 156 no. 2:238-340 My '64. (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo  
syr'ya. Predstavleno akademikom N.V.Belovym.

PORTNOV, A.M.

Calcium catapleiite, a new variety of catapleiite. Dokl. AN SSSR  
154 no. 3:607-609 Ja '64. (MIRA 17:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo  
syr'ya. Predstavleno akademikom N.V.Belovym.

STAVROV, O.D.; PORTNOV, A.M.

Geochemistry of cesium in alkali rocks. *Geokhimiia* no. 3:337-342  
Mr '65. (MIRA 18:7)

PORTNOV, A.M.

Zirconium-nafnium ratio in the minerals of the Burgala Massif.  
Geokhimiia no.3:368-371. Nr '65. (MIRA 18:7)

PORTNOV, A.M.

Strontium perrierite in the northern part of the Lake Baikal region. Dokl. AN SSSR 156 no. 3:579-581 '64. (MIRA 17:5)

1. Predstavleno akademikom N.V.Belovym.

PORTNOV, A.M.

Pyrophanite from the Lake Baikal region. Dokl. AN SSSR 153  
no.1:187-189 N '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'-  
nogo syr'ya. Predstavleno akademikom D.S. Korzhinskim.

PORTNOV, A.N. (Moskva)

Crater on the Patom Plateau. Priroda 51 no.11:102-103  
N '62. (MIRA 15:11)  
(Patom Plateau--Volcanoes)

PORTNOV, A.M.

Leucophane from the northern part of the Lake Baikal region.

Trudy Min. muz. no.15:229-231 '64.

(MIRA 17:11)



PORTNOV, A.M.

Crater at the Potomskoe Highland. Meteoritika no.25:194-195 '64.  
(MIRA 17:9)

PORTNOY, A.P.

Mold for the die casting of electric motor stators. Lit.proizv.  
no.3:43 Mr '62. (MIRA 15:3)  
(Die casting)

ACC NR: AT7002100

SOURCE CODE: UR/0000/66/000/000/0134/0138

AUTHOR: Portnov, B. B.; Tkachenko, N. V.

ORG: none

TITLE: Optically active material based on ED6 epoxy resin strengthened by methyltetrahydrophthalic anhydride

SOURCE: Vsesoyuznaya konferentsiya po polarizatsionno-opticheskomu metodu issledovaniya napryazheniy. 5th, Leningrad, 1964. Polarizatsionno-opticheskiy metod issledovaniya napryazheniy (Polarizing-optical method of investigating stresses); trudy konferentsii. Leningrad, Izd-vo Leningr. univ., 1966, 134-138

TOPIC TAGS: photoelasticity, resin, plasticizer, refractory coating, composite material

ABSTRACT: The method of preparation and properties of a new optically active material designated as ED6 MTGFA-58 are described. The material was made by mixing (by weight) 58 parts methyltetrahydrophthalic anhydride (MTGFA) into previously molten 100 parts of ED6 epoxy resin at temperature of 65--70C, and adding in sequence one part dibutyl phthalate, and 0.1 part dimethyl aniline. After polymerization the optical constant and modulus of elasticity at hardening and room temperatures were  $\sigma_0^{(1.0)} = 0.38 - 0.4 \text{ kg/cm} \cdot \text{line}$ ,  $E = 200 - 260 \text{ kg/cm}^2$ , and  $\sigma_1^{(1.0)} = 16.9 - 17 \text{ kg/cm}$

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ACC NR: AT7002100

line,  $E = (20 - 30) \times 10^3 \text{ kg/cm}^2$ , correspondingly. The time-edge effect was small, i.e., 0.5 lines/cm during 20 days storage. The opticoelastic properties were further checked experimentally in actual photoelastic problems whose theoretical solutions were known and it was established that the two practically coincide. Orig. art. has: 4 figures.

SUB CODE: 11/ SUBM DATE: 14Jun66

Card 2/2

PORTNOV, B.V., inzh.

Creative activity of petroleum workers in Baku. Izobr. i rats. 3  
no. 4:39-40 Ap '58. (MIRA 11:7)

(Baku--Petroleum workers)

PORTNOV, D.A.; POGODIN, S.I.

Comparative evaluation of methods for calculating characteristics of  
automotive gas-turbine engines. Trudy NII no.3:5-29 '57.

(MIRA 11:7)

(Gas turbines)

PORTNOV, D.A., doktor tekhn. nauk, prof.; KOSHKIN, V.K., doktor tekhn. nauk, prof., retsenzent; ORLIN, A.S., doktor tekhn. nauk, prof., retsenzent; POGODIN, S.I., kand. tekhn. nauk, red.; ZYUZIN, N.M., red. izd-va; EL'KIND, V.D., tekhn. red.

[High-speed piston and turbine engines with compression ignition; theory, operation, and characteristics] Bystrokhodnye turboporshnevye dvigateli s vosplameneniem ot szhatila; teoriia, rabochii protsess i kharakteristiki. Moskva, Mashgiz, 1963. 638 p. (MIRA 16:7)

(Internal combustion engines)

SOV/124-58-4-4020

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 4, p48 (USSR)

AUTHORS: Portnov, D. A., Pogodin, S. I.

TITLE: Comparative Evaluation of Methods for the Calculation of the Characteristics of Transport-type Gas-turbine Engines  
(Sravnitel'naya otsenka metodov rascheta kharakteristik transportnogo gazoturbinnogo dvigatelya)

PERIODICAL: Tr. N.-i. labor. dvigateley M-va transp. mashinostr. SSSR, 1957, Nr 3, pp 5-29

ABSTRACT: Formulas for computations are derived, and computations for two-spool transport-type gas-turbine engines are described for three cases: 1) When the characteristics of the compressor and turbines are available; 2) when turbine characteristics are not available, but compressor characteristics are available; and 3) when neither the turbine nor the compressor characteristics are available. For the cases Nrs 2 and 3 it is assumed that the turbine efficiency is a parabolic function of the ratio of the mean peripheral blade velocity to the gas velocity corresponding to adiabatic expansion in the turbine. Therein it is assumed that the flow of gas is independent of the turbine rpm.

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Comparative Evaluation of Methods (cont.)

Besides, for the third case it is assumed that the adiabatic work of the compressor is a function of the square of the compressor rpm. The following conclusion is made on the basis of the computations performed: For compressor speeds within 80 to 100% design rpm, and for power-turbine speeds within 60 to 80% of design rpm, all three of the methods produce fairly close results. For these conditions the engine power lies between 40 and 100% of the design value.

A. I. Loshkarev

1. Gas turbines--Design
2. Compressors--Design
3. Mathematics

Card 2/2

PORTNOV, D.A.

Heat regeneration and increase of economic efficiency of automotive  
gas-turbine engines. Trudy NIID no.3:47-64 '57. (MIRA 11:7)  
(Gas turbines)

SOV/124-58-1-507

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 62 (USSR)

AUTHOR: Portnov, D. A.

TITLE: Peculiarities of the Operating Cycle and Selection of the Supercharging Ratio of a High-speed Four-stroke Compression-ignition Engine (Osobennosti rabocheho protsessa i vybor stepeni nadduva bystrokhodnogo chetyrekhtaktnogo dvigatelya s vosplameneniyem ot szhatiya)

PERIODICAL: V sb. : Povysheniye moshchnosti dvigateley s vosplameneniyem ot szhatiya. Moscow, Mashgiz, 1954, pp 81-102

ABSTRACT: A presentation of the results of an experimental investigation of compression-ignition engines with jet-type mixture formation equipped with constant-pressure gas-turbine driven superchargers. The author studies the peculiarities of the operating cycle with moderate supercharging and extreme supercharging of the engine, wherein he designates as "extreme supercharging" that range in which the quantity of heat introduced into the supercharged engine will exceed the amount that can be introduced into the unsupercharged engine. It is shown that an increase in the supercharging

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SOV/124-58-1-537

Peculiarities of the Operating Cycle and Selection of the Supercharging (cont.)

pressure of the air supplied to the engine results in an increase in the work of filling, a decrease in the heat absorbed by the air from the hot walls, and a decrease in the residual-gas coefficient. In either supercharging range these factors vary monotonously. When entering the range of extreme supercharging it is advisable to widen the cross sections of the exhaust organs and to reorganize the exhaust phase in order to minimize the power losses due to the expulsion of the gases. At a given angle of advance of the fuel injection the period of retardation of the fuel ignition will be shortened and the relative amount of fuel injected during that period will be reduced; this will result in a reduction in the cycle-utilization factor and, in turn, in a slack combustion process. The result is a deterioration in fuel economy; hence, such operation is advisable only within a certain intake-air pressure range. The impairment of the indicator economy of the engine with extreme supercharging can be substantially reduced by fitting the fuel-injection characteristics step by step to the unfoldment of the combustion process and by the selection of fuel-injection equipment that would serve to retain the desired duration of the injection period. For extremely highly supercharged engines the development of an engine design suitable for operation at high combustion pressures is especially urgent. An improvement in the turbosupercharger efficiency and an increase in the effectiveness of the air intercooler are also of immediate significance.

Card 2/2

B. D. Zaloga

SOV/124-58-8-8606

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 37 (USSR)

AUTHOR: Portnov, D.A.

TITLE: Heat Recovery Used to Increase Economy of Transport-type Gas-turbine Engines (Regeneratsiya tepla i povysheniye ekonomichnosti transportnogo gazoturbinnogo dvigatelya)

PERIODICAL: Tr. N.-i. labor. dvigateley M-va transp. mashinostr. SSSR, 1957, Nr 3, pp 47-64

ABSTRACT: Three ways of increasing the economy of transport-type gas-turbine engines are examined: 1) improving the gasdynamically effective section, 2) raising the initial temperature and pressure upstream of the turbine, and 3) introducing into the cycle a heat-recovery process. From the calculations of the author it emerges that the most feasible of the three are the last two, of which the author considers the third and last to be the most realistic at present. Studies made of a gas-turbine engine equipped with a heat-recovery unit showed that, from the point of view of the additional bulk and complication involved, the heat-recovery process is expedient only when the relative gain in economy is more than sufficient to compensate

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## Heat Recovery Used to Increase Economy of Transport-type (cont.)

for the extra space required by the heat-recovery unit. Introduction of the heat-recovery process not only lowers the specific fuel consumption under design conditions but affects very favorably the behavior of the specific-fuel-consumption curve throughout the various operating conditions of the engine. The process is particularly effective in the case of engines with a controllable nozzle-junction-box assembly. A comparative study was made of the most promising heat-exchange surfaces, wherein the pressure drop ( $\Delta p = 725 \text{ kg/m}^2$ ) and volumetric flow rates involved [25 liters/(kg/sec)] were held constant in all cases. The following values were obtained for the degree of heat recovery: Surface consisting of smooth-surfaced tubes  $\eta = 0.55$ ; stationary surface consisting of plates  $\eta = 0.69$ ; rotating surface consisting of grids  $\eta = 0.76$ ; rotating surface consisting of plates  $\eta = 0.63$ . When allowance is made for possible dirt accumulation on the surfaces and for leakage, the degree of heat recovery is roughly as follows: For a stationary heat-recovery unit  $\eta = 0.66 - 0.68$ ; for a rotating heat-recovery unit  $\eta = 0.68 - 0.71$ . Hence, when it comes to designing a compact, highly efficient heat-recovery unit for gas-turbine engines, consideration should be given not only to the use of rotating heat-exchange surfaces but also to a stationary type comprised of special plates.

V. L. Ivanov

Card 2/2

KHANIN, N.S.; SHERSTYUK, A.N.; ZAYCHENKO, Ye.N.; DINEYEV, Yu.N.;  
PORTNOV, D.A., doktor tekhn.nauk, prof., retsenzent.

[Supercharging and superchargers of motor-vehicle engines]  
Nadduv i magnetateli avtomobil'nykh dvigatelei. Moskva,  
Mashinostroenie, 1965. 221 p. (MIRA 18:8)

PORTNOV, D. A.

"The Theory of a High Speed Turbopiston Engine With Compression Ignition." Dr Tech Sci, Moscow Higher Technical School, Moscow, 1954. (RZhMekh, Mar 55)

SO: Sum. No. 670, 29 Sep 55--Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)



PORTNOV, D.A.

TOLSTOV, A.I. and D.A. PORTNOV.

Vliianie davleniia i temperatury postupaiushchego vozdukha na rabotu aviadizelia.  
(Tekhnika vozdushnogo flota, 1941, v.15, no.4, p.41-53, diagrs.)

Title tr.: Effect of pressure and temperature of the intake air upon the aircraft  
Diesel engine performance.

TL504.Th 1941

S6: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress,  
1955.

Portnov, D. A.

KOSHKIN, Valentin Konstantinovich, professor; LEVIN, Boris Ruvimovich;  
KUTYRIN, Igor' Nikolayevich; BORISOV, Boris Petrovich; PORTNOV,  
D.A., doktor tekhnicheskikh nauk, retsenzent; LUSEPA, A.I.,  
kandidat tekhnicheskikh nauk, redaktor; UVAROVA, A.F., tekhnicheskiiy redaktor

[Free-piston engines in heat power plants] Dvigateli so svobodno  
dvizhushchimisya porshniami v teplosilovykh ustanovkakh. Pod red.  
V.K.Koshkina. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.  
lit-ry, 1957. 227 p. (MIRA 10:6)  
(Gas turbines) (Gas and oil engines) (Pistons)

6405/ADS  
MULTIOTLINE MOD 2 BSWA  
1711

Всесоюзный институт технической химии

[illegible]

Edited: A.S. Orlin, Doctor of Technical Sciences; Ed. of Publishing House:  
L.I. Yegorina; Tech. Ed.: V.D. Zil'kind; Managing Ed. for literature  
on Automotive, Tractor, and Agricultural Machine Building: I.M. Berman,  
Engineer.

**purpose:** This collection of articles is intended for scientific and engineering personnel of research institutes and machine-building plants.

**COVERAGE:** The collection contains reports and papers dealing with better economy and greater capacities for internal combustion engines. Experimental results are stated and their effectiveness evaluated. The conference took place in 1971. The introduction to the collection contains short summaries of the articles. No personalities are mentioned. References follow several of the articles.

several of the articles. The types of diesel engines discussed at loop scavenging are evaluated. The types of diesel engines discussed are mostly non-Soviet.

**Portnov, D.A.** [Doctor of Technical Sciences, Professor, MII]. Optimum Compression in a Transport-type Turbopiston Engine

compression in a transport-type turbopiston engine. The author analyzes the effects of compression on the basic parameters of the turbopiston-engine performance, the relation of compression to supercharging, actixis-pressure values in supercharging, and effects of supercharging pressure on various characteristic pressures in the engine.

Druslov, M.O. [Candidate of Technical Sciences, MTU Iseai Bauman]. Some possibilities of increasing the capacity and efficiency of two-stroke tractor diesel engines

nal engines. The author analyzes the effect of the shape of the exhaust cam and of the exhaust-valve timing upon the efficiency of an engine with valve-port scavenging. Other topics discussed in the article include scavenging efficiency of loop scavenging in one-cylinder engines, scavenging efficiency comparison for a Yal-20A engine, and the amount of supercharging in a Yal-20A engine.

**Year-20A engine.**  
Treusch, W.L. (Candidate of Technical Sciences, TATN). Contributions of the Year-20A engine toward improving the capacities and efficiencies of Diesel Engines With Divided Combustion Chambers and Turbulence Chambers. 1959. 10 p. 12 refs.  
The article reviews recent achievements in reducing fuel consumption in such diesel engines.

Sisatov, P.Y. [Candidates of Technical Sciences, Docent, VVTU (Lvovi Duman)].  
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**Some Possible Revolutions of a Four-stroke Engine**  
The author surveys some structural possibilities of increasing the p.p.m. coefficient and discusses the effects of the size of inlet port upon the capacity of the engine. Some information is given on gas penetration and methods of correcting it.

Slavov, A.I. [Candidate of Technical Sciences, Charkovsky zavod transportnykh mashin] *Stroitel'stvo i ekspluatatsiya mashin* V.A. Malyshova [Charkov Transport Machine-building Plant (Ismi V.A. Malyshov)]. Steps being taken in the Development of Gas-turbine Engines in Two-stroke Turbines for Diesel Locomotives

The author discusses the problem of supercharging in 20-100 engines, mainly in terms of the advantages and disadvantages of various methods. He concludes at this point, after studying numerous cases using superchargers driven by exhaust gas, that the most efficient and economical method of utilizing exhaust gas is by combining it with the kinetic energy of air forced into pressure as it leaves the blower vessel, to obtain a suitable pressure in the outlet. Tests have shown that such a system can produce a pressure ratio of 1.6 to 1.75, or a density increase in this type of engine is 150 to 155 grams per cubic centimeter-horsepower hour.

PORTNOV, D.A., doktor tekhn.nauk, prof.

Problem of the qualitative evaluation of the working process  
of an internal combustion engine. Energomashinostroenie 7  
no.9:45-46 S '61. (MIRA 14:9)  
(Gas and oil engines—Testing)

PORTNOV, F., kand. med. nauk

Charges for health. Znan.sila 34 no.3:12-13 Mr '59. (MIRA 12:4)

1. Rukovoditel' laboratorii aeroionoterapii Instituta eksperimental'noy meditsiny AN Latvyskoy SSR.

(AIR, IONIZED--THERAPEUTIC USE)

SOV/107-53-10-31/55

AUTHOR: Portnov, F., Candidate of Medical Sciences

TITLE: Generators of Aeroions (Generatory aeroionov)

PERIODICAL: Radio, 1953, Nr 10, p 34 (USSR)

ABSTRACT: The author discusses atmospheric ions and their physiological and therapeutic properties, discovered by Soviet scientists (A.P. Sokolov, A.L. Chizhevskiy, L.L. Vasil'yev, A.A. Minkh and others), and the various systems of generating them artificially. One of the first instruments of this kind was the electro-effluvial aeroionizer developed in the USSR by A.L. Chizhevskiy. However, this has many serious shortcomings. In the Laboratoriya aeroionoterapii Instituta eksperimental'noy meditsiny Akademii nauk Latvyskoy SSR (Laboratory of Aeroionotherapy of the Institute of Experimental Medicine of the Academy of Sciences of the Latvian SSR) a portable thermogenerator of aeroions, based on the use of the thermionic emission of incandescent metals, has been developed. In recent times (since 1957), ionizers working on the principle of ball-electric effect, have been used in the laboratory for the generation of aeroions. Such an apparatus has been designed by the author himself in con-

Card 1/2

Generators of Aeroions

SOV/107-56-10-31/55

junction with M. Yeygeles, a Rumanian engineer: a full description is given. When an aerosol ionizer of the above design was tested with P.N. Tverskiy's ionometer, it produced about 200,000 negative and 20,000 positive ions at a distance of 70 cm from the disperser. The ionizer can be used for treating diseases of the upper respiratory passages, high blood pressure and some forms of bronchial asthma; it is being used by the Rumanian Doctors Benedek, G. Ursu and T. Dordea for treating emphysema of the lungs, chronic bronchitis and a few other diseases. There is 1 diagram.

Card 2/2

PERLI, P.D.; PORTNOV, F.G.; PETERSON, M.P.; SKARD, Ya.V.; SHUL'TS, I.,  
red.; BITAR, A., tekhn. red.

[Treatment of patients at the health resorts of Latvia] Le-  
chenie bol'nykh na kurortakh Latviiskoi SSR, 1963. 213 p.  
(MIRA 17:3)



Portnov, F.G.

PHASE I BOOK EXPLOITATION

SOV/6150

Akademiya nauk Latvyskoy SSR. Institut eksperimental'noy meditsiny.

Voprosy kurortologii. [t.] 5: Problemy fiziologicheskogo deystviya i terapevticheskogo primeneniya aeroionov (Problems in Health-Resort Therapy. v. 5: Studies of the Physiological Effect and Therapeutic Application of Air Ions). Riga, Izd-vo AN Latvyskoy SSR, 1959. 424 p. (Series: Its: Trudy, t. 20) Errata slip inserted. 1000 copies printed.

Sponsoring Agency: Akademiya nauk Latvyskoy SSR. Institut eksperimental'noy meditsiny.

Editorial Board: Resp. Ed.: L. L. Vasil'yev, Professor, P. D. Perli, Professor, F. G. Portnov, Candidate of Medical Sciences, Ya. Yu. Reynet, Candidate of Physical and Mathematical Sciences, and L.M. Tutkevich, Candidate of Medical Sciences; Ed.: A. Vengranovich; Tech. Ed.: A. Zhukovskaya.

Card 1/7

Problems in Health-Resort (Cont.)

SOV/6150

**PURPOSE:** This book is intended for physicians working at health resorts and for the general practitioner.

**COVERAGE:** This book, a collection of articles, is essentially the proceedings of the Second Conference on the Physiological Effect and Therapeutic Application of Air Ions, held at Riga (Latvian SSR) in December 1957. The use of negative air ions is believed to be beneficial in the treatment of nonhealing wounds and ulcers which often result from radiation injury. The book contains photos of numerous devices described in the text. Numerous references, mostly Soviet, are given at the end of some of the articles.

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| Card 4/7                                                                                                                                                                                    |          |

PORTNOV, Foma Grigor'yevich; YUR'YAN, E.[Jurjans, E.], red.;  
SPORANE, V., tekhn. red.

[Health resorts of Soviet Latvia]Kurorty Sovetskoi Latvii.  
Izd.3., perer. i dop. Riga, Latviiskoe gos. izd-vo, 1962. 116 p.  
(MIRA 15:12)  
(LATVIA--HEALTH RESORTS, WATERIN-PLACES, ETC.)

PORTNOV, Foma Grigor'yevich, doktor med. nauk; NIKOLAYEV, V.R.,  
red.; SOROKO, Ya.I., red.

[Aeroions and the health] Aeroiony i zdorov'e. Moskva,  
Znanie, 1964. 39 p. (Novoe v zhizni, nauke, tekhnike.  
VIII Seria: Biologiya i meditsina, no.22)  
(MIRA 17:12)

PORTNOV, F. G.

PORTNOV, F. G. -- "Certain Functional-Dynamic Symptoms of Patients Suffering Hypertonic Disease During Treatment at the Riga Seaside."  
Acad Sci Latvian SSR, Inst of Experimental Medicine, 1955  
(Dissertation for the Degree of Candidate of Medical Sciences)

SO: Izvestiya Ak. Nauk Latviyskoy SSR, No. 9, Sept., 1955

PORTNOV, F., kand.med.nauk

Generators of ionized air. Radio no.10:34 0 '58.  
(MIRA 11:12)

(Air, Ionized)

PORTNOV, F.G., kand. med. nauk; MEDNIS, A., red.; MIRONOV, A.,  
tekhn. red.

[Health resorts of Soviet Latvia] Zdravnitsy Sovetskoi  
Latvii. Izd.2., perer. i dop. Riga, Latviiskoe gos. izd-  
vo, 1956. 77 p. (MIRA 16:6)  
(LATVIA--HEALTH RESORTS, WATERING PLACES, ETC.)



PORTNOV, F

G

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1956

Zdravnitsy Sovetskoy Latvii (Health resorts in Soviet Latvia) Izd. 2.,  
perer. i dop. Riga, Latviyskoye Gos.  
Izd-vo, 1956.

77p. illus.

At head of title: Latvian SSR.

Obshchestvo po Rasprostraneniyu Politicheskikh i Nauchnykh Znaniy. Sektsiya  
Meditsinskikh Nauk.

857.14

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MEA

EXCERPTA MEDICA Sec.12 Vol.12/5 Ophthalmology May 58  
*Portnov, F.G.*

797. CHANGES IN THE CENTRAL SCOTOMA IN PATIENTS WITH HYPERTENSIVE DISEASE TREATED AT THE SEASIDE OF RIGA (Russian text) -  
Portnov F. G. - TRUD. INST. EKSPER. MED. AKAD. NAUK. LATV. SSR  
1956, 12 (37-44)

Investigations were carried out in 63 patients with hypertensive disease (cardiac, cerebral and mixed forms) and also in 9 healthy persons. In the cardiac form roughly in 2/3 of the patients the scotoma remained normal, while in 1/3 it was slightly increased. In the cerebral form the area of the central scotoma was normal only in 3 patients, while in 55 it was enlarged. In the mixed form the size of the scotoma was normal in 5 patients, while enlargement of the area of projection of the blind spot was noted in 43 patients. Improvement in the general state and absence of complaints in patients with hypertensive disease in the course of the health resort treatment is accompanied by decrease of the central scotoma area. Measurement of the scotoma in the stated modifications is a fairly sensitive test, enabling one to determine the severity of a lesion of the visual analyser in patients with hypertensive disease.

(S)

PORTNOV, Foma Grigor'yevich; VENGRANOVICH, A., red.; LEMBERG, A.,  
tekh. red.

[Aeroions and their therapeutic use] Aeroiony i ikh lechenoe  
primenie. Riga, Izd-vo Akad. nauk Latviiskoi SSR, 1961. 107 p.  
(MIRA 15:3)

(AIR, IONIZED—THERAPEUTIC USE)

VASIL'YEV, L.L., prof.; PORTNOV, F.G., kand.med.nauk

Mountain air. Zdorov'e 5 no.6:5-6 Je '59. (MIRA 12:11)

1. Chlen-korrespondent AMN SSSR (for Vasil'yev).  
(AIR, IONIZED--THERAPEUTIC USE)

PORTNOV, G. I.

Conference on actinometry and heat balance. Meteor. i gidrol.  
no.10:57-58 0 '57. (MIRA 10:11)  
(Tartu--Solar radiation)

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ACC NR: AP6013474 (A) SOURCE CODE: UR/0374/66/000/002/0278/0284

AUTHOR: Tarnopol'skiy, Yu. M.; Portnov, G. G.

ORG: Institute of the Mechanics of Polymers, Academy of Sciences,  
Latvian SSR, Riga (Institut mekhaniki polimerov Akademii nauk  
Latviyskoy SSR)

TITLE: Change in winding tension during filament winding of glass  
reinforced plastic products

SOURCE: Mekhanika polimerov, no. 2, 1966, 278-284

TOPIC TAGS: filament winding, filament wound construction, glass  
reinforced plastic

ABSTRACT: A filament winding process for prestressed oriented rein-  
forced plastics has been investigated. It was shown that the essential  
anisotropy of the properties of these materials is the cause of a  
change in the initially predetermined winding tension. Based on the  
assumption that the materials exhibit linear-elastic behavior, the dis-  
tribution of winding tension was investigated for the case of the  
winding of a ring onto a rigid mandrel. A calculation method is pro-  
posed for determining the change in winding tension and the critical  
number of turns above which the pressure on the mandrel remains constant.  
Orig. art. has: 12 formulas and 6 figures. [SM]

SUB CODE: 311/ SUB DATE: 30Oct65/ ORIG REF: 007/ OTH REF: 003  
Card 1/1/5K UDC: 678:539.370

TARNOPOL'SKIY, Yu.M.; PORTNOV, G.G.

Investigation of the process of compression molding of parts  
made of glass plastics. Plast. massy no.11:19-23 '63.

(MIRA 16:12)



PORTNOV, G.V.

Technological procedures and technological processes  
in furniture manufacture. Der. prom. 14 no.9:19-21  
S '65.

(MIRA 18:12)

1. Vsesoyuznyy proyektno-konstruktorskiy i tekhnologicheskii  
institut mebeli.

PORTNOV, I.G.

PORTNOV, I.G.: "Some nonstationary problems with phase transformations in a moving liquid". Moscow, 1955. Moscow Order of Lenin and Order of the Red Banner State U imeni M.V. Lomonosov. (Dissertations for the Degree of Candidate of Physicomathematical Sciences).

SO: Knizhnaya letopis ' No 45, 5 November 1955. Moscow.

Portnov, I. G.

3

13194\* (Russian.) Frontal Boundary of a Cavitation Region.  
O perednei granitse kavitatsionnoi oblasti. I. G. Portnov.  
Izvestiya Akademii Nauk SSSR, Otdelenie Tekhnicheskikh Nauk,  
no. 3, Mar. 1957, p. 99-107.

The stability of a stationary temperature field in a moving medium is analyzed for the case when a surface of phase transition is present. A sufficient criterion of instability is established, and when this condition exists, for example, in the case of separated cavitation, the frontal boundary cannot exist in the form of a surface of phase transition, but represents a free surface.

GAS DYNAMICS

AUTHOR: Portnov, I.G. (Moscow). 24-4-14/34

TITLE: On the steady state regimes of the operation of a supersonic gas ejector. (O statsionarnykh rezhimakh raboty sverkhzvukovogo gazovogo ezhektora).

PERIODICAL: "Izv. Ak. Nauk, Otd. Tekh. Nauk" (Bulletin of the Ac. Sc., Technical Sciences Section), 1957, No.4, pp.106-109 (USSR).

ABSTRACT: In the operation of a gas ejector at super-critical flow conditions of the active gas, the presence of a surface of division of the flows at the initial section of the mixing chamber is a characteristic feature. To obtain steady state operation, equilibrium at this surface of sub-division is essential. The conditions of equilibrium of the surface of sub-division determine those steady state conditions which enable steady state operation of a gas ejector with a back pressure inherent in the gasodynamic system, for instance, a system consisting of high pressure and low pressure gas wells, an ejector and a gas collecting tank. It is assumed that outside the cylindrical mixing chamber the movement of the ideal gases is unidimensional and steady, that at the initial section of the mixing chamber the full pressure and the mass of each gas are constant, that there is no heat exchange through the walls and that the  $c_p/c_v$  ratio is the same for the active and for the

Card 1/2

On the steady state regimes of the operation of a super-sonic gas ejector. (Cont.) 24-4-14/34

passive gas and that, owing to the particular selection of the configuration of the Laval nozzle, the influence of the area of intersection of the rarefaction waves is insignificant and that, therefore, cross sections of equal pressures exist in which the movement of the gas can be considered unidimensional. The initial section of the mixing chamber is considered the section which is delimited by the inflow cross section and the cross section of equal pressures. The graphs, p.109, show good agreement of the calculated values with values measured experimentally on ejectors. There are 2 graphs, 3 Russian references.

SUBMITTED: November 9, 1956.

Card 2/2

AUTHOR: PORTNOV, I.G. (Moscow)

PA - 3076

TITLE: Concerning the Forward Boundary of the Cavitation Area.

(O peredney granitse kavitatsionnoy oblasti, Russian)

PERIODICAL: Izvestia Akad. Nauk SSSR, 1957, Vol 21, Nr 3, pp 99 - 107

(U.S.S.R.)

Received: 6 / 1957

Reviewed: 7 / 1957

ABSTRACT:

An investigation was conducted on the stability of a stationary temperature field in a self-moving medium on whose surface a phase transition is present. The forward boundary was defined as the one between the increasing flow and the area taken by the cavitation. It is taken for granted that an intensive steam generation begins there. The position of the surface of the phase transition  $\xi$  is determined not only by the pressure on the position in question of the flow but also by the temperature field in the vicinity of  $\xi$ , which is also dependent on the intensity of the steam generation. It is accepted that the physical characteristics are constant and that the magnitude of the temperature cross gradient from one current path to another is small. The equations are derived for heat conductivity in regard to the convective transmission of heat, for the boundary conditions belonging to it, the coupling conditions, and the additional conditions. The solutions of these equations are traced. For a steady case  $\xi = 0$  and  $\xi = \xi_0$ . For this case the equation is deduced out of which  $\xi_0$  can

Card 1/2

PORTNOV, I. G.

AUTHOR: Portnov, I. G. (Moscow).

24-1-8/26

TITLE: The temperature field in the region of cavitation with separations. (Temperaturnoye pole v oblasti sryvnoy kavitatsii).

PERIODICAL: Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk, 1958, No.1, pp. 63-71 (USSR).

ABSTRACT: On the basis of a number of simple assumptions, the amplitude and frequency of temperature oscillations in the region of disruptive cavitation are studied. Cavitation bubbles periodically appear in that region and are limited by a solid wall, a free surface and the surface of phase transition. It is pointed out that cyclic temperature stresses occur which apparently play an important role in bringing about fatigue cavitation disruptions on the surfaces of walls adjoining the cavitation region. By the development of the cavitation bubble is understood a displacement of the surface of phase transition  $\xi$  in the moving liquid. The temperature of the phase transition is considered to be constant and equal to  $u_{\xi}$ . For this reason the problem is reduced to the determination of the position of the isothermal  $u_{\xi}$  as a function of time. It is assumed that temperature changes in the medium are sufficiently small so that the following quantities can be taken to be

Card 1/2

24-1-8/26

The temperature field in the region of cavitation with separations.

constant: density,  $\rho$ , thermal capacity at constant pressure,  $c$ , thermal conductivity,  $k$ . Furthermore, it is assumed that these changes of temperature are such that the effect of energy dissipation on the temperature field is unimportant. The experimental results of Hunsaker (Ref.3) are discussed in terms of the present theory. It is shown that in certain cases cyclic temperature fluctuations of 5 to 10°C may occur which bring about, in the case of steel walls, maximum stresses of 170 to 340 kg/cm<sup>2</sup>. This type of cyclic temperature stress is similar to that observed in boiler tubes under regimes of layered or pulsating steam-water mixtures. The difference between the two is only in the frequency which, in the case of cavitation with separations, is several hundred times as high as in boiler components. The character of the cavitation damage is not determined solely by the cyclic thermal stresses but these play an important and in some cases a decisive role.

Card 2/2 There are 2 figures, 2 tables and 10 references -  
9 Russian, 1 English.

SUBMITTED: October 19, 1956.

AVAILABLE: Library of Congress.



SOV/124-58-11-12442

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 70 (USSR)

AUTHOR: Portnov, I. G.

TITLE: The Theory and Design Calculation of the Steady-state Working Regimes of a Supersonic Gas Ejector (Teoriya i raschet statsionarnykh rezhimov raboty sverkhzvukovogo gazovogo ezhektora)

PERIODICAL: Tr. Vses. n.-i. in-t prirodn. gazov, 1958, Nr 2 (10), pp 130-162

ABSTRACT: The paper presents methods of calculation of the steady-state working regimes of a supersonic gas ejector in application to conditions at which the backpressure behind the diffuser is the result of the reciprocal action of all the elements of a gasdynamic system which, besides the ejector, includes gas wells, gas mains, and gas collectors. The basic calculation equations are developed under the normally accepted assumption of a cylindrical form of the mixing chamber, the absence of heat exchange through the walls of the ejector, the complete mixing of the gases after passing the mixing chamber, etc. Another assumption is furthermore made regarding the presence of a certain section in the mixing chamber of the ejector (prior to which the gases do not mix) in which the static pressures of the low-pressure and high-pressure

Card 1/2

SOV/124-58-11-12442

The Theory and Design Calculation of the Steady-state Working Regimes (cont. )

gases are equal and constant over their cross section (a cross section of equal pressures). The author asserts that cross sections of equal pressures do exist, if the profile of the primary gas jet is selected properly. This assertion in a strict sense is inaccurate for a mixing of gases in an ejector with a cylindrical mixing chamber. Originally the hypothesis of the existence of the cross section of equal pressures was advanced in a work of M. D. Millionshchikov and G. M. Ryabinkov, no reference to which is made in the paper under review. There are on record several papers which demonstrate that the use of the hypothesis of the existence of a cross section of equal pressures under certain specified conditions produces a fundamental discrepancy in calculated values as compared to experimental ones. Several examples of the design of ejectors by the author's methods are presented. Considerations are set forth for the calculation of the influence of friction against the sides of the mixing chamber on the operational characteristics of the gas ejector. A comparison is made of calculated and experimental results. Bibliography: 7 references.

Ya. A. Lashkov

Card 2/2

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| 11(2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 150/2255 |
| Vsesoyuzny nauchno-issledovatel'skiy institut prirodnykh gazov                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |
| Nashcheta i ekspluatatsiya gazovykh mestorozhdeniy, transportnaya (Development and Exploitation of Gas Fields, Transportation of Gas) Moscow, Gosgortekhnizdat, 1969. 351 p. (Series: Itogi nauki i tekhn., Vyp. 5/13) Strana slyu inserted. 1,900 copies printed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |
| Sponsoring Agency: Otkrytoye upravleniye gazovoy promyshlennosti pri Sovetskom Ministerstve BSSR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |
| Eds.: Ye. M. Minaksky and V.M. Baben; Exec. Ed.: M.P. Martynov; Tech. Ed.: A.S. Polosina.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |
| FOREWORD: This collection of articles is intended for scientists, engineers, and technicians associated with the gas industry.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |
| CONTENTS: The articles discuss the development of gas fields, natural gas recovery, gas transportation, and subsurface gas conservation. The field operating conditions are analyzed from the commercial point of view. The author notes that due to the specific geological conditions prevailing in the USSR, the application of gas extraction methods of the type used in the United States is not always advisable. Individual articles discuss problems of the development of gas fields, the study of gas well performance, the theory of gas inflow, the study of gas well performance, gas filtration dynamics, and the study of gas condensates. A number of articles are devoted to the study of stabilized gas flow in pipelines, and discuss theoretical problems connected with the performance of gas ejectors and gas separators. The authors also deal with the corrosion of the inner surface of gas pipelines. Conclusions made by the authors are supported by mathematical calculations. No personalities are mentioned. References accompany each article. |          |
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PORTNOV, I.G.

Stability of the steady performance of supersonic gas ejectors.  
Trudy VNIIGAZ no.5:251-266 '59. (MIRA 12:9)  
(Gas flow)

PORTNOV, I.G.; ZOTOV, G.A.

Consecutive performance of gas ejectors at steady above critical  
point rates. Trudy VNIIGAZ no.5:267-284 '59. (MIRA 12:9)  
(Gas flow)

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S/055/60/000/006/008/008  
C111/C222

AUTHOR: Portnov, I.G.

TITLE: Consideration of Condensation and Heat Conduction of the Steam  
for the Investigation of the Collapse of a Spherical Bubble

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya I. Matematika,  
mekhanika, 1960, No. 6, pp. 84 - 93

TEXT: In an infinite, incompressible fluid without weight the author considers a bubble filled with steam with the initial radius  $\xi_0$ . Let the steam be condensed almost dry; let the temperature and the pressure in the bubble be functions of the time only. For a diminution of the bubble, the steam condenses at the walls, the nascent heat is supplied to the steam and the fluid. The author establishes the equations and boundary conditions of the processes taking place for three regions: spherical region of the pure steam, a spherical shell consisting of condenser water, remaining region of the fluid. Then the very complicated system of equations is simplified under the assumption that  $\xi_0 \ll 1$ ,  $\rho_1/\rho_2 \ll 1$ , where  $\rho_1$  is the density of the steam and  $\rho_2$  is the density of the water. For the Card 1/4

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C111/C222

Consideration of Condensation and Heat Conduction of the Steam for the Investigation of the Collapse of a Spherical Bubble

simpler boundary value problem obtained now, the fact is typical that the boundary conditions partially contain unknown functions of the time. The solution is carried out by applying the Laplace - transformation and by series arrangements :

$$(3.7) \quad \xi = \sum_{k=0}^{\infty} \zeta_k t^{k/2}$$

For the coefficients  $\zeta_k$  the author obtains  $\zeta_0 = 1$ ,  $\zeta_1 = \zeta_2 = \zeta_3 = 0$ ,

$$\zeta_4 = -\frac{1 + 2\sigma - \epsilon}{H}, \quad \zeta_5 = \zeta_6 = \zeta_7 = 0 \text{ etc., where } \epsilon = \frac{\xi_0}{R},$$

$$H = \frac{\zeta_2 \xi_0^2}{P_0 T^2}. \quad R, T - \text{characteristic length and time, } P_0 - \text{pressure in}$$

infinity,  $\sigma$  - surface stress. If then  $\xi^{-1} = \sum_{k=0}^{\infty} d_k t^{k/2}$

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C111/C222

Consideration of Condensation and Heat Conduction of the Steam for the Investigation of the Collapse of a Spherical Bubble

then it holds

$$(3.8) \quad p = \sum_{k=0}^{\infty} \alpha_k t^{k/2}$$

where

$$(3.9) \quad 8 \sigma_{1k}^d + h \left\{ [\zeta_0 \zeta_{k+4}^{(k+2)(k+4)} + \zeta_1 \zeta_{k+3}^{(k+1)(k+3)} + \dots] + \right. \\ \left. + 6[4 \zeta_4^k \zeta_k + 5 \zeta_5^{(k-1)} \zeta_{k-1} + \dots] \right\} = \begin{cases} 4(\alpha_0 - 1), & k=0, \\ 4\alpha_k, & k \neq 0. \end{cases}$$

Under corresponding simplifying assumptions one obtains the classical

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C111/C222

Consideration of Condensation and Heat Conduction of the Steam for the  
Investigation of the Collapse of a Spherical Bubble

results of Rayleigh and Besant.

The author thanks L.N. Sretenskiy for advices. There are 3 references,  
all non-Soviet.

ASSOCIATION: Kafedra gidrodinamiki (Chair of Hydrodynamics)

SUBMITTED: March 18, 1960

Card 4/4

PORTNOV, I.G.

Interference of straight-line gas wells. Trudy VNIIGAZ no.9:25-42  
'60. (MIRA 16:7)

(Gas wells)

PORTNOV, I.G.

Application of the local averaging method to interference problems  
of straight-line and circular gas wells. Trudy VNIIGAZ no.9:  
43-68 '60. (MIRA 16:7)

(Gas wells)

PORTNOV, I.G.

Interference of circular gas wells in bounded reservoir conditions.  
Trudy VNIIGAZ no.9:69-93 '60. (MIRA 16:7)  
(Gas wells)

PORTNOV, I.G.

Taking condensation and heat conduction into account in the investigation of the collapse of a spherical bubble filled with steam. Vest. Mosk. un. Ser.1: Mat., mekh.15 no.6:84-93 N-D '60.  
(MIRA 14:3)

1. Kafedra gidrodinamiki Moskovskogo universiteta.  
(Bubbles)

Portney, T. G.

Report presented at the Conference on Heat and Transfer,  
Minsk, USSR, 5-17 June 61.

RU-2852  
54

239. A. I. Viskov, T. L. Portney, Diffusion of Charged Particles at the Presence of Recombination
254. T. L. Portney, On Heat Transfer in Laminar Flow in the Side Part of a Tube
255. I. G. Prizak, Solution of Some Problems with Phase Conversions by Operational Calculus
256. L. M. Siman, Numerical Solution of Some Problem of Motion of a Liquid with Variable Viscosity
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262. A. V. Zhurav, Yu. A. Smolovitch, V. N. Kalugin, Regularities of Heating of the Si-Li-Test Shapes by Radiation and Convection
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264. L. S. Klyachko, Heat and Mass Transfer at Joint Free and Forced Convection
265. Iu. V. Lapin, Heat and Mass Transfer at Turbulent Flow of Gas-Test. Role of a Foreign Substance Supply
266. A. S. Ginevsky, E. E. Solodkin, Influence of Transversal Curvature of the Surface on Heat Transfer Rates of Nonsymmetrical Bodies and Ducts
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269. A. A. Ponomarev, On the Theory of Piston and Burning of a Body (One-Step Problem)

PORTNOV, I. G.

"Solution of several problems with phase changes by operational calculus methods."

Report presented at the 1st All-Union Conference on Heat- and Mass-Exchange, Minsk, BSSR, 5-9 June 1961.



PORTNOV, I.G.

Method for solving some boundary value problems with an unknown  
boundary. Vest.Mosk.un.Ser.1: Mat.,mekh. 17 no.3.67-70 My-Je  
'62. (MIRA 15:7)

1. Kafedra gidromekhaniki Moskovskogo universiteta.  
(Boundary value problems) (Phase rule and equilibrium)

24.5200

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S/020/62/143/003/010/029

B104/B102

AUTHOR: Portnov, I. G.

TITLE: Exact solution of the problem of freezing with an arbitrary temperature change at the immobile boundary

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 3, 1962, 559 - 562

TEXT: The freezing problem (A. N. Tikhonov et al., Uravneniya matematicheskoy fiziki, - Equations of Mathematical Physics, - M.-L., 1951) leads to the solution of a set of equations

$$\frac{\partial u_l}{\partial t} = \frac{a_l}{x_0^2} \frac{\partial^2 u_l}{\partial x^2} \quad (l = 1, 0 < x < \xi; \quad l = 2, \xi < x < \infty) \quad (1) \text{ under the supplementary conditions}$$

$$u_1(0, t) = f(t) < 0, \quad u_2(x, 0) = g(x) > 0, \quad \xi(0) = 0 \quad (2) \text{ and}$$

the conditions

$$u_1|_{\xi} = u_2|_{\xi} = 0, \quad \frac{\partial u_1}{\partial x}|_{\xi} - \frac{k_2}{k_1} \frac{\partial u_2}{\partial x}|_{\xi} = \frac{\lambda p x_0^2}{k_1 t_0} \frac{d\xi}{dt} \quad (3) \text{ at the phase transition interfaces. } x, t \text{ are a dimensionless coordinate and the time,}$$

Card 1/2

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B104/B102

Exact solution of the ...

$u_i(x, t)$  is the temperature;  $k_i$  and  $a_i$  are the thermal conductivity and diffusivity;  $\lambda$  is the latent phase transition heat;  $\rho$  is the density; the subscripts 1 and 2 refer to solid and liquid phase;  $x_0$  and  $t_0$  are the scale units of length and time.  $\xi(\tau) \frac{\partial v}{\partial \tau} + \xi(\tau) \xi'(\tau) \rho \frac{\partial v}{\partial \rho} = \rho^2 v$  (6) is obtained

by substituting  $t = \tau$  and  $x = y\{\tau\}$  at  $u_2 \equiv 0$  with the aid of a Laplace transformation. The temperature field is determined by a Poisson integral, and an exact solution of the problem is obtained. Proceeding from an approximate formula, and exact solution is obtained also for the velocity of the phase transition interface. There are 3 Soviet references.

PRESENTED: December 22, 1961, by I. I. Artobolevskiy, Academician

SUBMITTED: March 21, 1961

Card 2/2

PORTNOV, I.G. (Moscow)

"On the propagation of the visco-plastic zone in a rod striking an obstacle"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan- 5 Feb 64,

1. 40877-56 EST(1)/EST(m)/T IJP(c) IN/CD/JAJ/EM

ACC NR: AT6021845

SOURCE CODE: UR/0000/65/000/000/0286/C298

AUTHOR: Portnov, I. G. (Moscow)

53

52

B+1

ORG: none

TITLE: Fusion of a two layer plate

SOURCE: Teplo- i massoperenos. t. III: Teplo- i massoperenos pri fazovykh prevrashcheniyakh (Heat and mass transfer. v. 3: Heat and mass transfer in phase transformations). Minsk, Nauka i tekhnika, 1965, 286-298

TOPIC TAGS: heat of fusion, heat conductivity, conductive heat transfer

ABSTRACT: Assuming that the coefficients of heat conductivity  $k_1$  and thermal diffusivity  $a_1$ , the latent heat of phase transition  $\lambda$ , and the density  $\rho_i$  ( $i = 1, 2$ ) are constant, we write the system of equations and the supplementary conditions for the one dimensional problem of the fusion of a two layer plate. The heat conductivity equation for the first plate is

$$\frac{\partial u_1}{\partial t} = a_1 \frac{\partial^2 u_1}{\partial x^2} \quad (0 < x < l), \quad (1)$$

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ACC NR: AT6021845

The heat conductivity equation for the second plate is

$$\frac{\partial u_2}{\partial t} = a_2 \frac{\partial^2 u_2}{\partial x^2} \quad (l < x < b), \quad (2)$$

The conditions for the phase transition surface are

$$(u_1)_\xi = 0, \quad Q(t) + k_1 \left( \frac{\partial u_1}{\partial x} \right)_\xi = \lambda \rho \frac{d\xi}{dt}. \quad (3)$$

The conditions for the contact surface of the plates are

$$u_1 = u_2, \quad k_1 \frac{\partial u_1}{\partial x} = k_2 \frac{\partial u_2}{\partial x} \quad \text{при } x = l, \quad (4)$$

The condition for the free surface of the second plate is

$$u_2 = -u_0 \quad \text{при } x = b, \quad (5)$$

The initial conditions are

$$\xi = 0, \quad u_1 = -u_0, \quad u_2 = -u_0 \quad \text{при } t = 0. \quad (6)$$

Here  $x$  and  $t$  are a coordinate and the time;  $u_1$  is the temperature, calculated from the temperature of the phase transition;  $Q(t)$  is the heat flux;  $l - \xi$  is the thickness of the first plate;  $b - l$  is the

Card 2/3

L 40877-55

ACC NR: AT6021845

thickness of the second plate;  $\xi(t)$  is the coordinate of the moving phase boundary; subscripts 1 and 2 refer respectively to the first and second plates. The author solves the problem by the introduction of dimensionless variables. Sample numerical calculations are given. Orig. art. has: 64 formulas.

SUB CODE: 20/ SUBM DATE: 09Dec65/ ORIG REF: 002

Cord 3/3/72

PORTNOV, I.G. (Moskva)

Propagation of the zone of rigid state at the relieving of a  
viscoplastic rod. Inzh. zhur. 5 no.6:1092-1097 '65.  
(MIRA 19:1)

1. Submitted April 1, 1964.



USSR/Metallurgy - Foundry, Equipment Jan 52

"Tuyere for Direct Introduction of Oxygen Into Cast Iron," I. M. Portnov, Eng

"Litsey Proizvod" No 6, p 30

Describes new design of tuyere which eliminates harmful effect of oxygen stream on liquid metal. Design provides for interruption of oxygen feeding at any time without damaging of tuyere by filling with metal. States that low oxygen pressure prevents deterioration of softened refractory

230T45

bricks. Tuyere may be adjusted for operation in any melting furnace, is used mostly in cupola, and secures max effectiveness of oxygen usage with min oxygen consumption.

230T45

PORTNOV, I. M.

PORTNOV, I.M.

External rolls. Mashinostroitel: no.3:23 Mr '61.  
(Metals--Finishing)

(MIRA 14:3)

PORTNOV, I.M., ,nzh.; LYSENKO, Ye.F., inzh.

New designs of anchor devices for holding bundles of  
reinforcing rods. Bet. 1 zhel.-bet. no.3:130-131 Mr  
'60.

(MIRA 13:6)

(Reinforced concrete)

28 (5)

AUTHOR:

Portnov, I. M.

05748

SOV/32-25-10-37/63

TITLE:

A Universal Device for Measuring the Torsion Angle When  
Determining the Shear Modulus on a Torsion-testing Machine

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 10, pp 1245 - 1246  
(USSR)

ABSTRACT:

A device was developed, which makes it possible to measure the angle of twist on differently dimensioned samples (diameter 5 to 20 mm, length 100 to 250 mm) irrespective of the construction of the test machine. The measuring accuracy of the device is 0.0001 radian. By fastening the device immediately on to the sample the measuring error which occurs with other measuring methods is avoided. The device (Figure) is fastened to the sample by means of a bracket and two slitted plugs, one of which is fitted with a measuring scale graduated from 0 to 110 mm, as well as with an indicator which shows the angle of twist (after multiplication of the value read off from the scale with the conversion coefficient of the device  $A = 0.0001$ ). From the value of the angle of twist (expressed in radian) and the corresponding moment of torsion (in kg.cm) the modulus of shear in torsion may be calculated according to the well-known equation.

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